

Appl. No. 10/555,646  
In re VASILESCU et al.  
Reply to Office Action of April 13, 2007

**Amendments to the Specification:**

**Please replace the title of the invention on page 1 with the following rewritten title:**

[[A]] VENTILATING DEVICE[[.]] ~~ESPECIALLY FOR A MOTOR VEHICLE~~  
ALTERNATOR ROTARY ELECTRICAL MACHINE

**Please replace the abstract at page 30 with the following rewritten abstract:**

**ABSTRACT**

~~A VENTILATING DEVICE, ESPECIALLY FOR A MOTOR VEHICLE ALTERNATOR~~

The ventilating device[[.]] ~~adapted to be~~ fixed on a rotor of a rotary electrical machine, comprises a first fan (62a) having a radial plate portion (64a), at least one second fan (62b) having a radial plate portion (64b), and means for fastening the two fans (62a, 62b), each fan (62a, 62b) having, at the outer periphery of its radial plate portion, first branches (78a) and second branches (78b) which extend radially outwards, at least some of the branches having a blade (68a, 68b), while at least one first branch (78a) and at least one second branch (78b) includes a first (78a) and a second (78b) mutual overlapping portion to define an overlap zone (Z), the said fastening means (80, 82) being at least partly arranged at the level of the overlap zone.

**{Figure 3A}**

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**Please replace the paragraph beginning at page 6, line 3, with the following rewritten paragraph:**

A circumferential indexing ~~means~~ mechanism is interposed between the first and second radial plate portions, for circumferentially positioning the first blades with respect to the second blades.

**Please replace the paragraph beginning at page 6, line 14, with the following rewritten paragraph:**

The first and second radial plate portions are either in direct contact or in indirect contact with a thermal insulation ~~means~~ mechanism being interposed, such as a thermally insulating coating or layer.

**Please replace the paragraph beginning at page 10, line 22, with the following rewritten paragraph:**

The second fan 62b is in contact with the associated pole wheel. This contact is direct or indirect contact, there being a ~~means~~ mechanism which is hereinafter called ~~[[the]]~~ a third thermal insulation ~~means~~ mechanism, and which may be a coating or layer of an electrically insulating material, interposed at least locally between the pole wheel 21 concerned and the second fan 62b.

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**Please replace the paragraph beginning at page 12, line 24, with the following rewritten paragraph:**

An angular (or circumferential) indexing ~~means~~ mechanism is interposed between the two radial plate portions 64a and 64b, in order to give good angular positioning and therefore good orientation of the blades 68a and 68b.

**Please replace the paragraph beginning at page 13, line 26, with the following rewritten paragraph:**

However, in order to benefit from these advantages, it is necessary to fix the two fans 62a and 62b together in a reliable way and as rigidly as possible, while having maximum availability in the central annular radial plate portions 64a and 64b, in accordance with the features of the invention, for the purpose, in particular, of providing and having available a very large number of rotor fastening points 76 for fastening the ventilating device 60 on the rotor. The rotor fastening points 76 define rotor fastening mechanism of the ventilating device 60.

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**Please replace the paragraph beginning at page 14, line 4, with the following rewritten paragraph:**

These rotor fastening points 76 have a large geometric extent thanks to the features of the invention described later herein, and in this example there are six of them. These points are indicated in Figures 2 to 4 by hatched circular zones.

**Please replace the paragraph beginning at page 14, line 23, with the following rewritten paragraph:**

The two branches 78a and 78b mentioned above are superimposed on each other, and overlie, or overlap, at least partly in an overlap zone Z which is indicated in broken lines in Figure 3A, and it is thus possible to form in that zone associated fan fastening points 80 and 82, which in this example are in pairs. The fan fastening points 80 and 82 define a fan fastening mechanism of the ventilating device 60. These points 80, 82 have an extent smaller than that of the rotor fastening points 76. It will be noted that the ribs 67b, of which there are in this example two for each blade 68b, also extend into the branches 78b and extend up to the vicinity of a blade 68a.

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**Please replace the paragraph beginning at page 15, line 7, with the following rewritten paragraph:**

The fastening between the two fans 62a and 62b is thus particularly rigid, while enabling ~~[[a]]~~ the large number of the rotor fastening points 76 to be provided for fastening the ventilating device 60 on the rotor. This way of fastening enables the formation of ribs on the blades 68a to be avoided.

**Please replace the paragraph beginning at page 16, line 8, with the following rewritten paragraph:**

Thanks to this method of fastening by riveting, one of the two fans may be made of plastics material. Thus, in another version in Figures 11 and 12, the first fan 62a is for example preferably made of plastics material, while the second fan 62b is of metal, for formation of a rivet 79b by extrusion. In this case, a first thermal insulation ~~means~~ mechanism is preferably interposed, at least to a major extent, between the two radial plate portions of the fans. ~~These~~ The first ~~means~~ mechanism ~~[[are]]~~ is preferably extended by a second thermal insulating ~~means~~ mechanism interposed between the overlapping portions of the branches 78a and 78b.

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**Please replace the paragraph beginning at page 16, line 16, with the following rewritten paragraph:**

In another modified version, the first fan 62a is of metal and the second fan 62b of plastics material, so that in Figure 12 the heads of the rivets 79b formed by moulding with the second fan are hot-reformed. In that case, the rivets 79b, instead of being hollow as in Figures 11 and 12, are solid and a third thermal insulating ~~means~~ mechanism is preferably interposed, at least to a major extent, between the radial plate portion of the fan 62b and the rotor.

**Please replace the paragraph beginning at page 16, line 22, with the following rewritten paragraph:**

The first, second and third thermal insulating ~~means~~ mechanisms consist for example of a layer or coating which is a thermal insulator, for example a material having the same properties as asbestos. All combinations are possible, whatever the nature (i.e. metal or plastics) of the fan. These combinations are equally applicable to the other embodiments.

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**Please replace the paragraph beginning at page 16, line 27, with the following rewritten paragraph:**

For example, the second fan may be formed on one of its faces with a first thermally insulating coating for cooperation with the rotor, and on the other of its face, at the level of the branches 78b, with a coating for cooperation with the branches 78a. In a modified version, the second fan is formed with three thermal insulation ~~means~~ mechanisms.

**Please replace the paragraph beginning at page 18, line 22, with the following rewritten paragraph:**

The second fan 62b is therefore in contact with the pole wheel concerned. This contact is direct or indirect contact, with [[a]] the third thermal insulating ~~means~~ mechanism, such as a coating or layer of electrical insulating material, being interposed at least locally between the pole wheel 21 concerned and the second fan 62b.

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**Please replace the paragraph beginning at page 23, line 27, with the following rewritten paragraph:**

In another version, it is possible to configure at least some of the blades of at least one of the fans in such a way that the angle of incidence of the blades at the level of the leading edge is in the range between  $150^\circ$  and  $175^\circ$ , while the angle of incidence of the blades at the level of the trailing edge is in the range between  $90^\circ$  and  $165^\circ$ , with respect to the tangent to a circle described during rotation of the blades, and the ratio between the mean pitch of the blades and the mean length of the latter is less than 0.975, as is described in Application No. FR01 05772 filed on 27/04/2001. With this arrangement, friction losses are reduced in the cooling fluid.

**Please replace the paragraph beginning at page 25, line 8, with the following rewritten paragraph:**

It will be appreciated that the cut-outs 178a between two consecutive branches 78a are not identical, as can be seen in Figure 16. This arrangement enables the fans to be balanced in advance (in a pre-balancing operation), by adding material to, or removing it from, some places. Thus, the cut-outs 178a define a balancing mechanism of the ventilating device 60. This is made easier by the overlapping zones and the fastening points according to the invention, which enable



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the branches to be stiffened.

**Please replace the paragraph beginning at page 25, line 15, with the following rewritten paragraph:**

In a modified arrangement, balancing is achieved by forming at least one through hole in at least one of the fans in the region of an overlapping zone of the branches, as can be seen at 176 in Figure 3 and at 276 in Figure 16, the through hole in the latter Figure being formed in an appropriate branch of the fan 62a between two fastening points 80, 82. This at least one through hole (176 or 276) in at least one of the fans defines the balancing mechanism of the ventilating device 60.

**Please replace the paragraph beginning at page 25, line 22, with the following rewritten paragraph:**

The chamfers 88a do of course also enable balancing to be carried out and define the balancing mechanism of the ventilating device 60. The same is true in forming apertures in the blades.